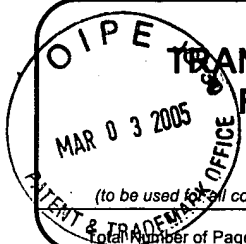
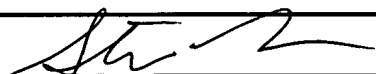
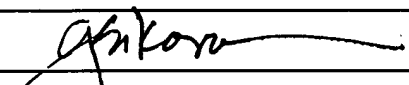


ITW

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ENCLOSURES (Check all that apply)		
<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Reply to Missing Parts/ Incomplete Application <input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____ <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance Communication to TC <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): Return Postcard RENEWED PETITION TO MAKE SPECIAL FOR NEW APPLICATION (18pp) PRELIMINARY AMENDMENT (12pp)
Remarks The Commissioner is authorized to charge any additional fees to Deposit Account 20-1430.		
SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT		
Firm Name	Townsend and Townsend and Crew LLP	
Signature		
Printed name	Steve Y. Cho	
Date	February 28, 2005	Reg. No. 44,612

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PATENT
Docket No.: 16869P-083400US
Client Ref. No.: 340201750US1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Takahiko Takeda

Application No.: 10/603,076

Filed: June 23, 2003

For: DATA PROCESSING SYSTEM
INCLUDING STORAGE SYSTEMS

Confirmation No. 8562

Examiner:

Art Unit: 2186

RENEWED PETITION TO MAKE
SPECIAL FOR NEW APPLICATION
UNDER M.P.E.P. § 708.02, VIII

Attn: Brian L. Johnson
Special Program Examiner
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

February 28, 2005

Sir:

This is a Renewed Petition to Make Special the above-identified application under MPEP § 708.02, VIII, in response to the Decision dated December 30, 2004, dismissing the Petition to Make Special, filed on October 8, 2004. The application has not received any examination by the Examiner.

With respect to claims 18 and 19, the previously-filed Petition was dismissed for not providing a detailed discussion of the references and how the claimed subject matter is patentable over the references. The discussion of the references and patentability of claims 18 and 19 over the references are added to the previously-filed Petition in underline form for the convenience of the Special Program Examiner. Petitioner assumes the petition requirements for other independent claims are satisfied by the previously-filed Petition. Nevertheless, Petitioner has added herein the discussion on independent claims 15 and 17 out of abundance of caution. This discussion is also underlined for the convenience of the Special Program Examiner.

(a) The Commissioner is authorized to charge any fees associated with this paper to Deposit Account 20-1430.

(b) All the claims are believed to be directed to a single invention. If the Office determines that all the claims presented are not obviously directed to a single invention, then Applicant will make an election without traverse as a prerequisite to the grant of special status. If claims 13-16 (method claims) are found not to be examinable with the group including claims 1-12 and 18-20 (apparatus claims), then Applicant hereby cancels claims 13-16 and elects claims 1-12 and 18-20 and any other claims in the same group. Similarly, if claim 17 (computer medium claims) is found not to be examinable with the group including claims 1-12 and 18-20, then Applicant hereby cancels claim 17 and elects claims 1-12 and 18-20 and any other claims in the same group.

(c) Pre-examination searches were made covering Subclasses 6, 11, 13, and 19 of Class 714; Subclasses 113, 114, 162, and 164 of Class 711; Subclass 21 of Class 710; and Subclasses 8, 10, and 201-206 of Class 707, by Mattingly, Stanger & Malur, P.C. ("Mattingly"), a professional search firm. The U.S. Patent and U.S. Patent Publication databases were searched using keywords. Copies of the letter and search report received from the Mattingly are enclosed.

(d) The following U.S. patents and applications, accordingly to Mattingly, have been deemed most closely related to the subject matter encompassed by the claims:

- (1) U.S. Patent No. 6,549,920 to Obara
- (2) U.S. Patent No. 6,560,617 to Winger
- (3) U.S. Patent No. 6,526,487 to Ohran
- (4) U.S. Patent No. 6,338,126 to Ohran
- (5) U.S. Patent No. 6,044,444 to Ofek
- (6) U.S. Patent No. 5,901,327 to Ofek
- (7) U.S. Patent No. 5,742,792 to Yanai
- (8) U.S. Patent App. Pub. No.2003/0115224 to Obrara

(9) U.S. Patent App. Pub. No. 2002/0133511 to Hostetter

(e) Set forth below is a detailed discussion of references which points out with particularity how the claimed subject matter is distinguishable over the references.

Claimed Embodiments of the Present Invention.

The claimed embodiments relates to a data processing system for providing redundant data. The embodiments use at least two communication links between two storage systems: a first link to communicate primarily management information between hosts and a second link to transmit primarily data between storage subsystems. Redundant data are efficiently provided at the secondary storage subsystem by having the first and second hosts and the first and second subsystems cooperate with each other.

Claim 1 recites, "a first storage system including a first host and a first storage subsystem, the first host having access to a first copy manager, the first copy manager being operable to manage a data replication operation; a second storage system including a second host and a second storage subsystem, the second host having access to a second copy manager, the second copy manager being operable to manage a data replication operation; a first communication link coupling the first storage system and the second storage system to exchange management information between the first and second storage systems to manage the data replication operation, the management information including first control information transmitted from the first host to the second host; and a data transfer path configured to transfer data stored in the first storage subsystem to the second storage subsystem and replicate the data of the first storage subsystem in the second storage subsystem, the data transfer path being different from the first communication link, wherein the second host is configured to cause execution of the second copy manager using the first control information to initiate transfer of the data from the first storage subsystem to the second storage subsystem."

Claim 13 recites, "transmitting a completion notification from the second storage subsystem to the second host to inform the second host that the second storage subsystem has finished receiving first information from the first storage subsystem via a data transfer link coupling the first and second storage subsystems; receiving at the second storage subsystem a restore command from the second host to obtain second information using the first information, the second information being associated with the first information; and performing a restoration process to obtain the second information at the second storage subsystem upon receiving the restore command, the second information being a copy of data stored in the first storage subsystem, wherein the first and second hosts are coupled to each other via a communication link to transmit or receive management information relating to the remote replication method." A system or method having the above recited features may be used to provide one or more of the benefits explained below.

Claim 15 recites, "storing data in a first storage area in a first storage subsystem of a first storage system according to an instruction of a first host associated with the first storage subsystem, the first storage system including the first host and the first subsystem; storing an update journal in a second storage area in the first storage subsystem, the update journal corresponding to the data stored in the first storage area, the update journal including journal data and metadata; notifying the first host that the first storage subsystem is ready to transfer the update journal to a second storage system, so that the first host can inform the second storage system via a first communication link that the first storage subsystem is ready to transfer the update journal to the second storage system, the first communication link being configured to exchange management information between the first host and the second storage system; and transferring a journal including the update journal to the second storage system via a data transfer path that is different from the first communication link."

Claim 17 recites, "code for storing data in a first storage area in a first storage subsystem of a first storage system according to an instruction of the a first host that is associated with the first storage subsystem, the first storage system including the

first host and the first subsystem; code for storing a journal in a second storage area in the first storage subsystem, the journal corresponding to the data stored in the first storage area, the journal including journal data and metadata; code for notifying the first host that the first storage subsystem is ready to transfer the journal to a second storage system, so that the first host, in turn, can notify the second storage system via a first communication link that the first storage subsystem is ready to transfer the journal to the second storage system, the first communication link being configured to exchange management information between the first host and the second storage system; and code for transferring the journal information to the second storage system via a data transfer path that is different from the first communication link.

Claim 18 is directed to a storage subsystem provided in a data processing system, the data processing system including a first storage system and a second storage system, the first storage system including a host and the storage subsystem. The claim recites, "a storage controller to communicate with the host that is coupled to a remote host of a remote storage system via a first communication link, the first communication link being configured to exchange management information between the host of the storage subsystem and the remote host of the remote storage system; a first storage area to store data according to an instruction of the host of the storage subsystem; a second storage area to store a journal corresponding to the data stored in the first storage area, the journal including journal data and meta data; and a communication interface coupled to a second communication link, the second communication link coupling the storage subsystem and a remote storage unit of the remote storage system, the second communication link being configured to transfer the journal to the remote storage unit and being different than the first communication link, wherein the storage subsystem is configured to notify the host when the storage subsystem is ready to transfer the journal stored in the second storage area to the remote storage unit."

Claim 19 recites, "a primary storage system including a primary host and a primary storage subsystem, the primary storage subsystem being configured to perform an asynchronous remote replication procedure, the primary storage subsystem including a

first storage area for storing data and a second storage area for storing a journal corresponding to the data; a secondary storage system including a secondary host and a secondary storage subsystem, the secondary subsystem being configured to perform an asynchronous remote replication procedure, the secondary storage subsystem including a third storage for receiving and storing the journal from the primary storage subsystem and a fourth storage for storing data that has been restored using the journal received from the primary storage subsystem, the restored data being a copy of the data stored in the first storage area; a first communication link coupling the primary host and the secondary host to exchange management information; and a second communication link coupling the primary storage subsystem and the secondary storage subsystem to exchange data between the primary and secondary storage subsystems, wherein the primary host is configured to provide management information about the journal stored in the second storage area to the secondary host via the first communication link; wherein the secondary host is configured to instruct the secondary storage subsystem to obtain the restored data from the journal received from the primary storage subsystem upon receiving a notification that a receipt of the journal has been completed from secondary storage subsystem, wherein the primary storage subsystem is configured to retrieve the journal from the second storage area and transfer the journal to the secondary storage system via the second communication link upon receiving a data transfer request or determining a predetermined condition has been satisfied."

One benefit that may be derived is the improvement in providing redundant data at a remote storage system. The delay as a result of bottleneck is reduced by providing two different communication links: one to communicate management information between first and second hosts and another to transfer data between first and second storage subsystems (see the first and second paragraphs of page 3).

Another benefit that may be derived is the use of a second storage area (e.g., a journal volume 2222 to store journals therein), so that a first storage area (e.g., a volume 2212) may store write data received from the first host with minimal performance impact. Fig. 3 illustrates this concept according to an embodiment of the invention.

U.S. Patent No. 6,549,920 to Obara

Obara discloses a data duplication control method for a Database Management System (DBMS) in a storage system. An agent directs the DBMS of a main host system to overwrite data of the database table. The agent directs a main disk control unit of the main disk unit to transfer the DB table data in the DB table to a DB table on a subordinate disk unit by way of a subordinate disk control unit in order to duplicate the DB table data.

Regarding claim 1, Obara does not disclose both "the first communication link" and "the data transfer path." Obara also does not disclose the second host that is configured "to cause execution of the second copy manager using the first control information to initiate transfer of the data from the first storage subsystem to the second storage subsystem."

Regarding claim 13, Obara does not disclose the concept of restoration process, where the second information is obtained using the first information. For example, the data that had been stored in the first storage area or primary volume is obtained by restoring the journal, so that a copy of the data may be stored in a secondary volume (see Fig. 7).

Regarding claim 15, Obara does not disclose both the "first communication link" and "data transfer path." Accordingly, it does not disclose the step of transferring a journal via a data transfer path that is different from the first communication link.

Regarding claim 17, for the reasons set forth above with respect to claim 15, Obara does not disclose "code for transferring the journal information to the second storage system via a data transfer path that is different from the first communication link."

Regarding claim 18, Obara does not disclose the second communication link that is different than the first communication link. Obara also does not disclose the

storage subsystem that is configured to notify the host when the storage subsystem is ready to transfer the journal stored in the second storage area to the remote storage unit.

Regarding claim 19, Obara does not disclose the first and second communication links. Obara also does not disclose the second host that is configured "...to instruct the secondary storage subsystem to obtain the restored data from the journal received from the primary storage subsystem upon receiving a notification that a receipt of the journal has been completed from secondary storage subsystem."

U.S. Patent No. 6,560,617 to Winger

Winger discloses a method for providing rapid recovery from a network file server failure through the use of a backup computer system or server. The backup computer system runs a special mass storage access program that communicates with a mass storage emulator program on the network file server, making the disks or other mass storage devices on the backup computer system appear like they were disks on the file server computer. Data on the file server is copied to the back-up server by writing to the mass storage of the backup computer using a mass storage emulator. The mass storage devices 114 and 124 appear to be disk drives. (col. 3:21-23).

Regarding claim 1, Winger does not disclose the first and second storage subsystems. Accordingly, winger does not disclose "the first communication link" coupling the storage subsystems. Communication means 102 in Winger couples the two computer systems. The mass storage devices do not communicate or transfer data directly with each other since there is no "data transfer path" that couples them. In addition, Winger does not disclose the second host that is configured "to cause execution of the second copy manager using the first control information to initiate transfer of the data from the first storage subsystem to the second storage subsystem."

Regarding claim 13, Winger does not disclose the concept of restoration process, where the second information is obtained using the first information.

Regarding claim 15, Winger does not disclose the "data transfer path" that is different from the "first communication link" for transferring the journal from the first storage system to the second storage system.

Regarding claim 17, for the reasons set forth above with respect to claim 15, Winger does not disclose "code for transferring the journal information to the second storage system via a data transfer path that is different from the first communication link."

Regarding claim 18, Winger does not disclose the second communication link that is different than the first communication link. Winger also does not disclose the storage subsystem that is configured to notify the host when the storage subsystem is ready to transfer the journal stored in the second storage area to the remote storage unit.

Regarding claim 19, Winger does not disclose the first and second communication links. Winger also does not disclose the second host that is configured "...to instruct the secondary storage subsystem to obtain the restored data from the journal received from the primary storage subsystem upon receiving a notification that a receipt of the journal has been completed from secondary storage subsystem."

U.S. Patent No. 6,526,487 to Ohran

Ohran discloses a primary computer system and a backup computer system to copy data of the primary system to the backup system. Ohran discloses a method of obtaining mirrored data so that the original data can be recovered after failure without transmitting the entire mirrored data between the computers. A write request at a primary computer is stored in a delay buffer and a copy is transmitted to a backup computer, where it is stored in a delta queue. The backup computer executes the copy of the write request to the mirrored data and transmits an acknowledgement to the primary computer that the copy of the write request has been received. In response to the acknowledgement, the primary computer executes the write request stored in the delay buffer. The computers send to each other subsequent acknowledgements of the write request execution, enabling the computers to delete the write requests. If the primary

computer fails, the primary computer can recover the original data by receiving only the copies of write requests that remain stored in the delta queue.

Regarding claim 1, Ohran does not disclose the first and second subsystems. Accordingly, it does not disclose both "the first communication link" and "the data transfer path." Ohran also does not disclose the second host that is configured "to cause execution of the second copy manager using the first control information to initiate transfer of the data from the first storage subsystem to the second storage subsystem."

Regarding claim 13, Ohran does not disclose the concept of restoration process, where the second information is obtained using the first information.

Regarding claim 15, Ohran does not disclose the "data transfer path" that is different from the "first communication link" for transferring the journal from the first storage system to the second storage system, where the first communication link is used to exchange management information, and the data transfer path is used to transfer data.

Regarding claim 17, for the reasons set forth above with respect to claim 15, Ohran does not disclose "code for transferring the journal information to the second storage system via a data transfer path that is different from the first communication link."

Regarding claim 18, Ohran does not disclose the second communication link that is different than the first communication link, where the first communication link is used to exchange management information, and the second communication information is used to transfer the journal. Ohran also does not disclose the storage subsystem that is configured to notify the host when the storage subsystem is ready to transfer the journal stored in the second storage area to the remote storage unit.

Regarding claim 19, Ohran does not disclose the first and second communication links, where the first communication link is used to exchange management information between the hosts, and the second communication link is used to exchange data between the storage subsystems. Ohran also does not disclose the second host that is configured "...to instruct the secondary storage subsystem to obtain

the restored data from the journal received from the primary storage subsystem upon receiving a notification that a receipt of the journal has been completed from secondary storage subsystem."

U.S. Patent No. 6,338,126 to Ohran

Ohran discloses a primary computer system and a backup computer system, each having an associated memory. For each write request, a copy of the request is forwarded to a delay buffer and memory queue associated with the primary computer system, and a copy is forwarded to a memory queue of the backup computer system. The backup computer system transmits an acknowledgement signal to the primary computer system when the backup computer system receives its copy of the request. The write request in the delay buffer of the primary computer system is executed in the primary memory only upon receipt of this acknowledgement signal. Thus, the backup computer system knows of every request executed in the primary memory. The write request is executed in the backup memory at any time after the backup computer system receives the write request. The write requests are deleted from the memory queues (primary and backup) when the associated computer system confirms that the write request was executed in the memory of the opposite computer system. Should the primary (or backup) computer system shut down, the requests are accumulated in the opposite backup (or primary) memory queue. When the primary (or backup) computer system becomes operational again, the requests in the opposite backup (or primary) memory queue are executed in the primary (or backup) memory. Thus, no memory is lost when the primary (or backup) computer system shuts down and complete remirroring of data is not required.

Regarding claim 1, Ohran does not disclose the hosts and subsystems, in the manner recited. The mass storage devices 114 and 124 appear to be magnetic disks (col.4:1-2). Accordingly, Ohran does not disclose "the data transfer path" coupling the storage subsystems. Obara also does not disclose the second host that is configured "to

cause execution of the second copy manager using the first control information to initiate transfer of the data from the first storage subsystem to the second storage subsystem."

Regarding claim 13, Ohran does not disclose the concept of restoration process, where the second information is obtained using the first information.

Regarding claim 15, as explained above with respect to claim 1, Ohran does not disclose the hosts and subsystems, in the manner recited. Accordingly, Ohran does not disclose the "data transfer path" that is different from the "first communication link" for transferring the journal from the first storage system to the second storage system, where the first communication link is used to exchange management information, and the data transfer path is used to transfer data.

Regarding claim 17, for the reasons set forth above with respect to claim 15, Ohran does not disclose "code for transferring the journal information to the second storage system via a data transfer path that is different from the first communication link."

Regarding claim 18, Ohran does not disclose the second communication link that is different than the first communication link, where the first communication link is used to exchange management information, and the second communication information is used to transfer the journal. Ohran also does not disclose the storage subsystem that is configured to notify the host when the storage subsystem is ready to transfer the journal stored in the second storage area to the remote storage unit.

Regarding claim 19, Ohran does not disclose the first and second communication links, where the first communication link is used to exchange management information between the hosts, and the second communication link is used to exchange data between the storage subsystems. Ohran also does not disclose the second host that is configured "...to instruct the secondary storage subsystem to obtain the restored data from the journal received from the primary storage subsystem upon receiving a notification that a receipt of the journal has been completed from secondary storage subsystem."

U.S. Patent No. 6,044,444 to Ofek

Ofek discloses two data storage systems that are interconnected by a data link for remote mirroring of data. Each volume of data is configured as local or primary in a remotely mirrored volume pair, or secondary in a remotely mirrored volume pair. A host computer directly accesses either a local or a primary volume, and data written to a primary volume is automatically sent over the link to a corresponding secondary volume. Each remotely mirrored volume pair can operate in a selected synchronization mode including synchronous, semi-synchronous, adaptive copy--remote write pending, and adaptive copy--disk.

Regarding claim 1, Ofek does not disclose both the "first communication link" and "the data transfer path." In Ofek, each host is configured to access and communicate with the two disk array units 214 and 246 (see Fig. 4). That is, Ofek does not disclose a first communication link that is used to exchange management information to manage the data replication operation, where the management information includes first control information transmitted from the first host to the second host. Ofek also does not disclose the second host that is configured "to cause execution of the second copy manager using the first control information to initiate transfer of the data from the first storage subsystem to the second storage subsystem."

Regarding claim 13, Ofek does not disclose the concept of restoration process, where the second information is obtained using the first information.

Regarding claim 15, as explained above with respect to claim 1, Ofek does not disclose the "data transfer path" that is different from the "first communication link" for transferring the journal from the first storage system to the second storage system, where the first communication link is used to exchange management information, and the data transfer path is used to transfer data.

Regarding claim 17, for the reasons set forth above with respect to claim 15, Ofek does not disclose "code for transferring the journal information to the second storage system via a data transfer path that is different from the first communication link."

Regarding claim 18, Ofek does not disclose the second communication link that is different than the first communication link, where the first communication link is used to exchange management information, and the second communication information is used to transfer the journal. Ofek also does not disclose the storage subsystem that is configured to notify the host when the storage subsystem is ready to transfer the journal stored in the second storage area to the remote storage unit.

Regarding claim 19, Ofek does not disclose the first and second communication links, where the first communication link is used to exchange management information between the hosts, and the second communication link is used to exchange data between the storage subsystems. Ofek also does not disclose the second host that is configured "...to instruct the secondary storage subsystem to obtain the restored data from the journal received from the primary storage subsystem upon receiving a notification that a receipt of the journal has been completed from secondary storage subsystem."

U.S. Patent No. 5,901,327 to Ofek

This patent is a related to Ofek above and has the same specification. As explained above, Ofek does not disclose both the "first communication link" and "the data transfer path." In Ofek, each host is configured to access and communicate with the two disk array units 214 and 246 (see Fig. 4). That is, Ofek does not disclose a first communication link that is used to exchange management information to manage the data replication operation, where the management information includes first control information transmitted from the first host to the second host. Ofek also does not disclose the second host that is configured "to cause execution of the second copy manager using the first control information to initiate transfer of the data from the first storage subsystem to the second storage subsystem." Ofek does not disclose the concept of restoration process, where the second information is obtained using the first information.

For the reasons set forth above, the remarks made with respect to U.S. Pat. No. 6,044,444 to Ofek for claims 1, 13, 15, 17, 18, and 19 apply for the present reference as well.

U.S. Patent No. 5,742,792 to Yanai

Yanai discloses two data storage systems that are interconnected by a data link for remote mirroring of data. Yanai is related to Ofek above and has the same specification. As explained above, Ofek does not disclose both the "first communication link" and "the data transfer path." In Ofek, each host is configured to access and communicate with the two disk array units 214 and 246 (see Fig. 4). That is, Ofek does not disclose a first communication link that is used to exchange management information to manage the data replication operation, where the management information includes first control information transmitted from the first host to the second host. Ofek also does not disclose the second host that is configured "to cause execution of the second copy manager using the first control information to initiate transfer of the data from the first storage subsystem to the second storage subsystem." Yanai does not disclose the concept of restoration process, where the second information is obtained using the first information.

For the reasons set forth above, the remarks made with respect to U.S. Pat. No. 6,044,444 to Ofek for claims 1, 13, 15, 17, 18, and 19 apply for the present reference as well.

U.S. Patent App. Pub. No.2003/0115224 to Obrara

Obrara discloses a database duplication method. An agent directs the Database Management System of a main host system to overwrite data of the database table. The agent directs a main disk control unit of the main disk unit to transfer the DB table data in the DB table to a DB table on a subordinate disk unit by way of a subordinate disk control unit in order to duplicate the DB table data.

Regarding claim 1, Obara does not disclose "the first communication link" and "the data transfer path." Obara also does not disclose the second host that is configured "to cause execution of the second copy manager using the first control information to initiate transfer of the data from the first storage subsystem to the second storage subsystem."

Regarding claim 13, Obara does not disclose the concept of restoration process, where the second information is obtained using the first information.

Regarding claim 15, as explained above with respect to claim 1, Obara does not disclose the "data transfer path" that is different from the "first communication link" for transferring the journal from the first storage system to the second storage system, where the first communication link is used to exchange management information, and the data transfer path is used to transfer data.

Regarding claim 17, for the reasons set forth above with respect to claim 15, Obara does not disclose "code for transferring the journal information to the second storage system via a data transfer path that is different from the first communication link."

Regarding claim 18, Obara does not disclose the second communication link that is different than the first communication link, where the first communication link is used to exchange management information, and the second communication information is used to transfer the journal. Obara also does not disclose the storage subsystem that is configured to notify the host when the storage subsystem is ready to transfer the journal stored in the second storage area to the remote storage unit.

Regarding claim 19, Obara does not disclose the first and second communication links, where the first communication link is used to exchange management information between the hosts, and the second communication link is used to exchange data between the storage subsystems. Obara also does not disclose the second host that is configured "...to instruct the secondary storage subsystem to obtain the restored data from the journal received from the primary storage subsystem upon

receiving a notification that a receipt of the journal has been completed from secondary storage subsystem."

U.S. Patent App. Pub. No. 2002/0133511 to Hostetter

Hostetter discloses a system and method for synchronizing a data copy that include a source volume having a data file stored thereon. The source volume is configured to receive write commands from a host. The method includes executing the write commands to generate an updated data file and generating a record of the write commands. The system and method further include a secondary volume having a copy of the data file stored thereon. The secondary volume is configured to receive and store data indicated by the write command record.

Regarding claim 1, Hostetter does not disclose the "first communication link" that is used to exchange management information to manage the data replication operation, where the management information includes first control information transmitted from the first host to the second host. In fact, Hostetter only discloses one host. Hostetter also does not disclose the second host that is configured "to cause execution of the second copy manager using the first control information to initiate transfer of the data from the first storage subsystem to the second storage subsystem."

Regarding claim 13, Hostetter does not disclose the concept of restoration process, where the second information is obtained using the first information.

Regarding claim 15, Hostetter does not disclose the "data transfer path" that is different from the "first communication link" for transferring the journal from the first storage system to the second storage system, where the first communication link is used to exchange management information, and the data transfer path is used to transfer data.

Regarding claim 17, for the reasons set forth above with respect to claim 15, Hostetter does not disclose "code for transferring the journal information to the second storage system via a data transfer path that is different from the first communication link."

Regarding claim 18, Hostetter does not disclose the second communication link that is different than the first communication link, where the first communication link is used to exchange management information between at least two hosts, and the second communication information is used to transfer the journal. Hostetter also does not disclose the storage subsystem that is configured to notify the host when the storage subsystem is ready to transfer the journal stored in the second storage area to the remote storage unit.

Regarding claim 19, Hostetter does not disclose the first and second communication links, where the first communication link is used to exchange management information between the hosts, and the second communication link is used to exchange data between the storage subsystems. Hostetter also does not disclose the second host that is configured "...to instruct the secondary storage subsystem to obtain the restored data from the journal received from the primary storage subsystem upon receiving a notification that a receipt of the journal has been completed from secondary storage subsystem."

In view of this petition, the Examiner is respectfully requested to issue a first Office Action at an early date.

Respectfully submitted,



Steve Y. Cho
Reg. No. 44,612

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